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TRANSFERRING BEES TO MODERN HIVES



KEEPING BEES in box hives or log gums is unprofitable. The care that bees need in order to gather a fair crop of honey can be given only if the beekeeper is able to examine the bees and to move the combs as needed.

The purpose of this bulletin is to show how to transfer bees from box hives into movable frame hives and how to remove or exterminate bees from buildings and other places.

Unless the bees are properly managed after the transfer, there is little advantage in movable frame hives. This requires a study of beekeeping as well as promptness and care. Directions for handling bees are given in other publications of the department.

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TRANSFERRING BEES TO MODERN HIVES

By E. L. SECHRIST, *Associate Apiculturist, Division of Bee Culture, Bureau of Entomology*

Revised by JAS. I. HAMBLETON, *Senior Apiculturist*

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ADVANTAGES OF MOVABLE-FRAME HIVES

THOUSANDS of colonies of bees kept in the United States are housed in log gums and in box hives and produce for their owners an insignificant quantity of honey compared with what they might be made to produce if they were transferred into movable-frame hives and handled by improved methods. Following the old-fashioned method of housing bees in log gums and box hives is costing many beekeepers more money than they realize. Much of the honey produced by colonies in box hives is wasted by crude methods of securing the crop; these colonies are reduced in earning value by uncontrolled swarming, and the annual loss of bees which die in winter through lack of protection or on account of insufficient winter stores is great. Since the care essential to producing large crops of honey can be given only to bees in movable-frame hives, it is to the advantage of all who have bees in box hives and gums to transfer their bees to movable-frame hives, at the proper season, and to study the best methods of beekeeping. These hives should be carefully made. The model, at least, should be a factory-made hive, and the standard 10-frame Langstroth hive is recommended above all others, and may be purchased from any dealer in beekeepers' supplies.

Transferring, as used in this bulletin, means removing a colony of bees, either with or without its combs, from a box hive or gum into a modern, movable-frame hive. Scarcely any work connected with beekeeping is more trying than transferring by the old method of cutting the combs from the old hive and fitting them into the movable frames of the new hive. Shorter and easier methods have been devised and this method is not now generally used. In this bulletin the easier methods also are explained.

Bees are wild animals, and man must handle them in accordance with their natural characteristics if he wishes them to yield the best returns. For the man who does not intend to study his bees and give them the proper care, the modern movable-frame hive is no better than the box hive, and the beekeeper who uses movable-frame hives must also study the best methods of modern beekeeping if he would make the business successful. He needs to become familiar with the bee colony, to study the arrangement of combs and brood nest, and to learn about the queen and her work. The old method of transferring gives an excellent opportunity to obtain first-hand information on these natural activities of the bees.

Beekeeping practices are based on bee behavior and, to a degree rarely seen in other branches of agriculture, success in beekeeping depends on a study of natural activities. Too many beekeepers work by rule of thumb; the successful beekeeper is a student of bees, adapting his practice to changing seasons and knowing what to expect from his bees under a given set of conditions.

TIME FOR TRANSFERRING

A good time for transferring is immediately after the casting of a prime swarm when the number of bees in the hive is greatly reduced and when there is no danger of losing or injuring the queen, as she will have gone out with the swarm, leaving queen cells in the hive. Bees can be transferred, however, at any time when there is some nectar being gathered so that the bees will not be inclined to rob, although during a heavy honey flow the combs will be heavy with honey, and difficult to handle. Some method of transferring can be used successfully at any part of the active season if care is taken to see that the colony does not suffer later from lack of stores. It is necessary to see that the transferred colony gathers enough honey in time for winter, or that it is fed if necessary.

If transferring is attempted at a time when robbers are bad, the work should be done inside a screened or bee-tight building, but the beginner should, if possible, choose a time when the bees are working freely and should work out of doors to avoid trouble from crawling bees. It is usually well to transfer the first few colonies in the late afternoon so that, if robbing does begin, it will stop with night.

METHODS OF TRANSFERRING

Several methods of transferring are given here, and the beekeeper can choose the one best adapted to his plans and conditions. Plan 1 is interesting to one who wishes to study bee behavior but is not well adapted to large operations.

PLAN 1.—CUTTING THE COMBS FROM THE BOX HIVE

PREPARING FOR THE WORK

Before work is begun, the operator should have the necessary tools and equipment right at hand so that he may do the transferring quickly and may not be compelled to stop work to get some forgotten necessity. A basin or pail of water is helpful, as the operator should

wash the tools and his hands frequently to keep them free from honey. The hive must, of course, be ready and the smoker should be lighted and with an ample supply of fuel at hand. Carpenter tools such as saw, hammer, and cold chisel are needed for opening the hive. A ball of soft wrapping twine, a heavy butcher knife, two hammers or heavy sticks for drumming on the box hive, and a large board or a hive cover or a piece of heavy paper on which to cut and fit the combs must also be provided. A large clean dish pan or pail for holding chunks of honey should be within reach.

DRUMMING OUT THE BEES

On a fine day when many of the bees are out gathering nectar, a little smoke should be blown into the entrance of the box hive or

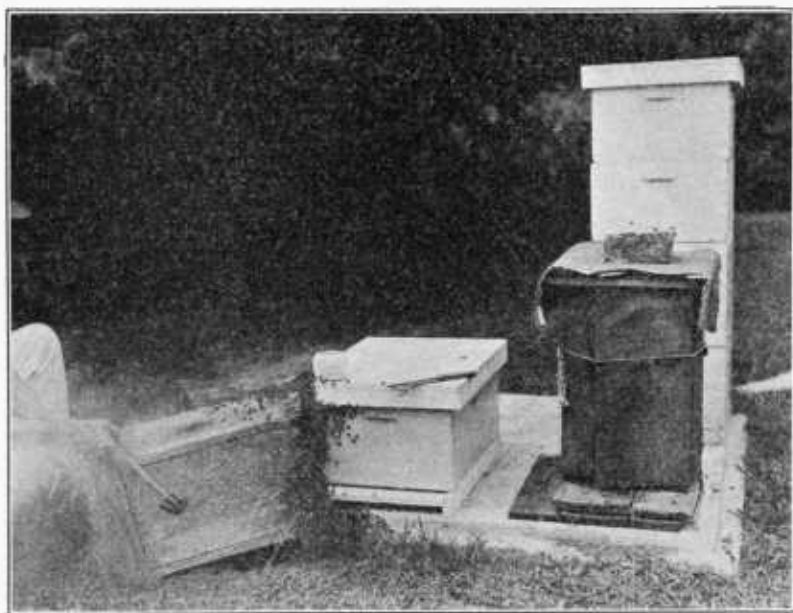


FIGURE 1.—Drumming bees from the bottom of a box hive

gum to induce the bees to fill themselves with honey. The box hive should now be removed and the new hive, preferably with at least one drawn comb in it, placed exactly on the old stand to receive the returning bees. A little more smoke should be blown into the entrance of the box hive and the bottom removed, if there is one. The box hive is now placed in the position illustrated in Figure 1.

With the two sticks or hammers the beekeeper raps on the sides of the box hive, hard enough to jar the combs but not so hard as to loosen them. The strokes should be regular and continuous. After a few raps the bees will begin to run toward the open end and will enter the new hive. The drumming should be continued for perhaps 10 or 15 minutes, until three-fourths of the bees or more have entered the new hive. If the queen is not seen as the bees pass into the hive, it will be well to drum more bees from the combs.

SAVING THE COMBS

One side of the box hive or gum is now removed or split off (see title page) to expose the combs, which are cut out and laid aside until the brood is reached. As soon as possible a frame should be filled with comb containing brood and placed in the new hive unless one has already been given. To fit comb into a frame (fig. 2), a large piece of comb is laid flat on paper or a cutting board and the frame placed loosely on top. The outline of the inside of the frame is marked on the comb with the point of a knife, the frame is set aside, and the comb is cut to fit tightly in the frame. Two or more pieces of comb containing brood may be used in one frame, but it is not wise to save small pieces of comb. The comb should fit into the

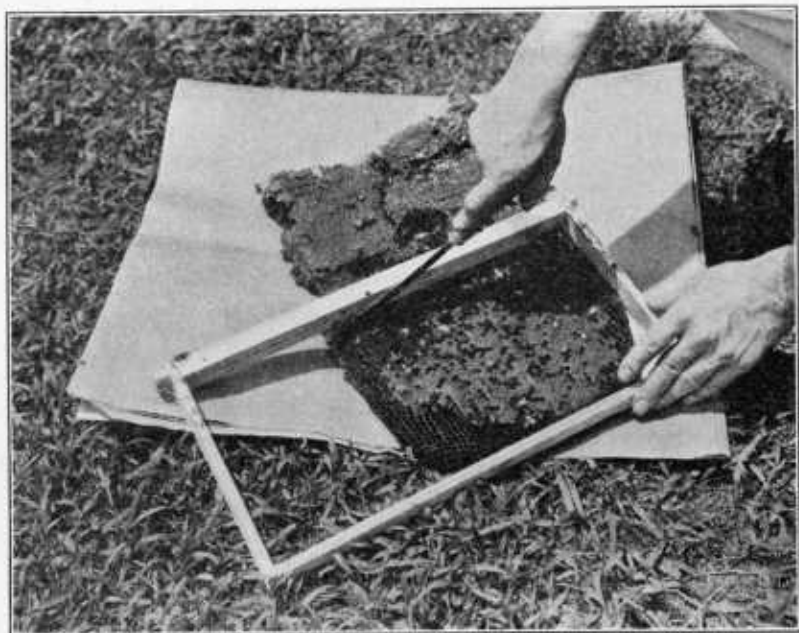


FIGURE 2.—Fitting old comb into a new frame

frame so snugly that it will be held closely until fastened by the bees. After the frame is fitted around the comb as it lies on the board, the pieces of comb should be tied securely to the frame as shown in Figure 3. As fast as the frames are filled they should be placed in the hive. No drone comb should be saved, and it is usually not best to save any worker comb unless it contains brood. At any rate, only large pieces of regular comb should be selected. Enough combs filled with honey may be saved to meet the immediate needs of the colony. Frames not filled with comb should be filled with full sheets of comb foundation.

PREVENTING ROBBING

After transferring is finished, all scraps of comb and wax should be placed in a closed box to be melted up later, and everything should

be washed clean to prevent robbing. Any good honey may be saved for home use, or it may be fed back to the bees by placing it in a pan in an empty upper story over the brood combs.

Throughout the work great care should be taken that bees from other hives do not come to help themselves to honey; otherwise robbing may start and become serious. If robbing should begin, everything should at once be taken inside a bee-tight house, and the transferring should be finished there. All work with bees should then be stopped for the day.

The bees in the new hive will immediately set to work to fasten the combs into the frames, and to cut away the strings and drag them

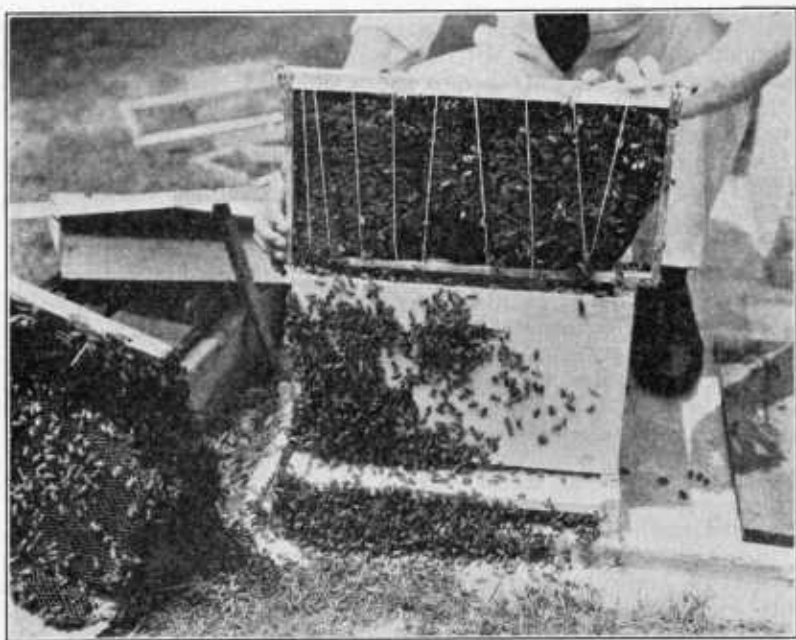


FIGURE 3.—Wrapping twine used to hold pieces of comb in the frame

out of the hive. After a few days any remaining strings may be pulled off and any combs not evenly fastened in the frames may be pressed into place.

PLAN 2.—DRUMMING OUT AND HIVING ON FULL SHEETS OF COMB FOUNDATION

The second plan prevents robbing, requires no cutting and fitting of combs dripping with honey, and provides that all combs be built from full sheets of comb foundation, so that only straight worker combs are obtained. When this method is used the bees occasionally swarm out and abandon the new hive unless the queen is caged in the hive or is confined in it by a queen excluder placed between the bottom board and the hive. The success of this plan depends on getting the queen out of the old hive and into the new.

The box hive is set a few feet to one side, and a hive with movable frames containing drawn combs or full sheets of comb foundation is put exactly in its place, so that as the field bees return they go at once into the new hive. It is well to put into the new hive a frame containing some eggs and young larvae from which the bees may rear a queen in case the old queen has been lost; or a new queen may be given to the colony. The box hive is turned on its side and three-fourths or more of the bees drummed out as in plan 1. The box hive containing the brood and enough bees to care for it is then placed, right side up, in a new location, preferably a few feet to the rear of the old stand and with the entrance in the opposite direction. In 21 days all the worker brood will have emerged and possibly a new queen will have been reared. These bees may be drummed out and united with their former hive mates by allowing them to run in at the entrance of the new hive. To prevent fighting at this time the bees in the new hive should be well smoked, and it is well to shake the bees off from several combs from the new hive and allow them to run in with the drummed-out bees. The old hive may now be broken up, any honey saved, and the combs melted.

If nectar is not being collected at the time the colony is transferred, it is imperative that the colony be fed. A sirup made of equal parts of water and a good grade of granulated sugar is placed in a friction-top pail of about 1-gallon capacity, the lid of which has been perforated with about a dozen holes of lath-nail size. When the can is inverted over the frames, the bees have access to the holes in the lid and can obtain the sirup as fast as it is needed. This gives the bees a good start and enables them to build new comb much faster than they otherwise could.

PLAN 3.—TRANSFERRING BY PLACING A NEW HIVE OVER THE BOX HIVE

A third method, useful in doing a considerable amount of transferring with a minimum of work, is carried out as follows: The box hive is placed with its largest surface uppermost, with the combs on edge so that they will not break down. The bees should be well smoked before the hive is turned on its side, and the hive should not be moved from its original location. What is now the top of the box hive is removed by splitting it into strips an inch or two wide and carefully removing them so as not to mutilate the combs. The new hive, without a bottom, contains combs or comb foundation, at least one comb being used if possible. The new hive is set on the box hive, over the largest cluster of bees, and any portion of the old hive that is not covered by the new hive should be covered with pieces of board. (Fig. 4.) If any part of the new hive extends over the box hive, the opening should be closed with a piece of board. What was the bottom and is now the front of the old hive may be left entirely open, unless there is danger of robbing. Leaving this opening will cause the bees to work up into the new hive much more rapidly. If robbing is likely, a board may be set up to partly close the front of the old hive.

If the box hive has no comb in the top (because the honey was removed the previous season) the space should be filled with straw or shavings, the modern hive set over the part where the comb is,

and a board laid over the straw. This will prevent the building of any more comb in the box hive. If there is some honey in the top of the old hive, the bees will remove it if the cover is pried off, little by little, several times during the season, until finally it can be removed completely, leaving both ends of the hive open. By this time the bees will have moved all the honey into the new hive, the queen will have established her brood nest there, and the bees will have transferred themselves. If the beekeeper wishes, he may, after the queen has begun to lay eggs above, put a queen excluder between the new hive and the old, which will prevent the queen from returning to the box hive. This usually will not be necessary, as the bees will probably abandon the box hive as a brood chamber, since its combs are so much exposed. After the brood has all emerged from the combs in the box hive the new hive may be placed on the regular bottom board, the old hive may be broken up, and the combs may be rendered into wax. Supers should be placed on top of the new hive as needed, even while it is on the box hive, to prevent the bees from returning to the abandoned brood nest. This plan usually prevents swarming for the season and enables the bees to store the full crop of honey.

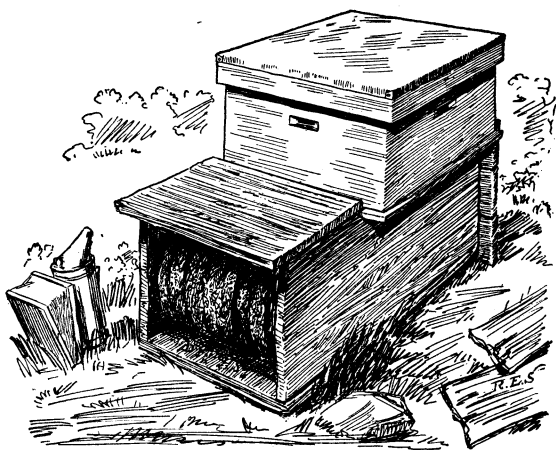


FIGURE 4.—Transferring bees by setting the new hive on top of the old one. In this figure the new hive covers the upper part of the old one. The exposed end was the bottom of the old box hive.

TRANSFERRING FROM HOUSES OR FROM BEE TREES

Bees may be transferred from the walls of a house or from a bee tree by adapting the methods previously described.

If the bee tree is cut down, the shock of the fall may so disorganize the colony that it will offer little or no resistance, and the transferring may be done by cutting out the combs and fitting them into the frames as described in plan 1. The same method may be followed if the branch containing the colony is cut off and lowered to the ground.

If a colony of bees is so situated in the walls of a house that a part of the siding or roof can be removed to expose the combs, the transferring may be done as in plan 1 or, if it is desirable not to damage the house, the bees may be trapped out by the use of a spring bee escape.

If it is thought desirable to save the bees, an experienced beekeeper should appraise the value of the colony and thus determine whether

its removal would be worth while, and supervise the transfer in order to prevent any unnecessary damage to the building.

If the bees are in an old or worthless building the plaster or parts of the outside wall or roof can be torn away so as to make the combs readily accessible. The combs can be cut out and fitted to frames, as described under plan 1. A special effort should be made to transfer the queen to the new hive and, if a great many of the field bees are successfully transferred, it will be necessary to take the newly occupied hive a mile or two away for a few days, after which it can be placed on a permanent location. If the new colony is not moved, a great many of the field bees will return to their old location and be lost. At best this plan will result in the loss of many field bees.

It is possible to trap the bees by placing a bee escape (a small apparatus sold by bee-supply companies) over the hole by which they enter and leave their nest. An escape can also be made of a wire-cloth cone about 8 inches long, so placed over the entrance that no bees can escape elsewhere than through the small hole in the tip of the cone. This hole should be so small that only one bee can pass at a time. Any other entrances must be securely closed or the operation will fail. The bee escape permits the bees to pass but one way; the field bees that are out can not enter, but those in the nest may leave. A hive equipped with combs or full sheets of foundation should be placed with its entrance within a foot or so of the old entrance. The trapped bees, not being able to gain entrance to their old nest, will soon adopt the new hive. Within a day or two after this is done, it will be necessary to introduce a laying queen or to supply the bees with a frame containing eggs and young larvae so that they may raise a queen.

The newly established colony should be left in position for five or six weeks, at the end of which time most of the brood in the old nest will have emerged and gone over into the new hive, which may then be moved to any desired location. If the hive is to be left in the immediate vicinity, it should be moved after nightfall to a place a mile or two away and left there for several days before it is returned to a permanent stand.

A colony should be removed in this manner only in spring or early summer; otherwise there will be scarcely sufficient time for the bees to build up colonies strong enough to winter successfully. As soon as the colony has become well established in its permanent location the bee escape may be removed, thus permitting the bees to rob the honey out of the old nest.

DESTROYING BEES ESTABLISHED IN WALLS OF HOUSES AND OTHER UNDESIRABLE PLACES

In destroying bee colonies established where they are not wanted, the services of an experienced bee man should be obtained, but if these services are not available one of the following methods should prove effective:

All places of entry to the nest are plugged with wet paper, rags, putty, or similar material. This will cause the bees confined to the building to die. Bees will be found clustering and flying about the

former entrance for several days after it is closed but in a few days they will become discouraged and leave.

Where it is not practicable to stop all entries to the nest, the bees may be poisoned with calcium cyanide, carbon disulphide, gasoline, or other volatile insecticides poisonous to honeybees.

DESTROYING BEES WITH CALCIUM CYANIDE

Calcium cyanide is procurable in powdered form at most well-stocked seed stores. Upon contact with the moisture of the air this chemical evolves a gas highly poisonous to all forms of animal life. Ordinarily a tablespoonful of the powder placed in the entrance of a strong colony will kill all the bees in a few minutes. If the nest is in a wall or partition, it is usually impossible to know how large the nest is or how much air space surrounds it. For this reason the amounts of calcium cyanide necessary to kill different colonies will be different.

The poison should be placed in the nest as close to the entrance as possible. Often this can be done by shaking the powder through a tube. A dust gun, however, is ideal for blowing the powder into the nest.

Warning.—Calcium cyanide is extremely poisonous and should be handled with care. If the odor of the gas can be detected in any part of the building in which the poison has been used, the building should be thoroughly ventilated. Persons and livestock should be kept away from the immediate vicinity.

DESTROYING BEES WITH CARBON DISULPHIDE OR WITH GASOLINE

Carbon disulphide, a liquid fumigant with an unpleasant odor, is effective in killing bees if it can be poured over the nest or so placed that the heavy gas fumes which it produces on evaporation can settle about the nest.

Gasoline can also be used in this manner, although it is not so effective and more is required. In using gasoline it is more important to see that the liquid is poured directly on the nest than in using carbon disulphide, although carbon disulphide gas is heavier than air and will settle away from the nest if there is a considerable cavity below.

Warning.—The fumes of carbon disulphide, although ill-smelling and poisonous, are less dangerous than those of calcium cyanide. Carbon disulphide gas is inflammable and highly explosive, however, when mixed with air in certain proportions, and should not be used near fire of any sort. The same, of course, applies to gasoline.

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